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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,770	12/27/2001	Shuang Liu	PH-7124	9015

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EXAMINER

HARTLEY, MICHAEL G

ART UNIT	PAPER NUMBER
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1616

DATE MAILED: 09/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/033,770

Applicant(s)

LIU, SHUANG

Examiner

Michael G. Hartley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) 7-42 and 44-60 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 43 is/are rejected.
- 7) ☒ Claim(s) 5 and 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Election/Restrictions

Applicant's election with traverse of Group 4 in Paper No. 5 is acknowledged. The traversal is on the ground(s) that the inventions are not distinct and that there is not a serious burden on the examiner to search and examine all the grouped inventions, since the inventions have been placed in only nine different classes. Applicant also asserts that there is common core, namely the amino phosphonate groups on the chelating arms of the claimed compounds. This is not found persuasive because the claimed compounds do not include a common core. The amino phosphonate groups do not constitute a common core, because this structure may be substituted to include various macrocyclic compounds, including various heterocyclic rings that would control the classification. For example, a nitrogen-containing heterocyclic ring would control the classification to a totally different class, regardless of the present amino phosphonate groups. Such would also be the case for acyclic compounds containing different atoms, such as, Si, Ge, N, P, P=O, As, and As=O. This is further complicated by the fact that various side groups may contain heterocyclic rings, such as, R² and X, which would control the classification of the compounds. Given the large diversity of the numerous variables, and the different atoms and/or chemical groups which may be used to connect the amino phosphonate chelating arms, the compounds cover so many classes and/or subclasses, that each class/subclass cannot be specifically named for each of the possibilities presented. Thus, it would constitute a serious burden on the examiner to search and examine all the grouped inventions. The distinctness is shown by the divergent nature of the chemical groups that may be present in the claimed compounds, such as, the inclusion of macrocyclic rings which may be heterocyclic, the different atoms and/or chemical groups which may present in acyclic compounds encompassed thereby. For example, various R groups are defined as having a cycloalkenyl group that may be interrupted with C(O)NH, NH, NHC(O), O, S, etc. There is no means of conducting a search to include all the possible variables for such diverse groups, without a serious burden. Because the compounds include such diverse chemical groups, which have different properties, the compounds are distinct, due to their unrelated chemical formula.

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The elected species of the compound of example 1 is further acknowledged. The search will begin with this species and be extended to include species in the elected group, until a species found therein is cited as prior art, in accordance with *Markush* practice.

The requirement is still deemed proper and is therefore made FINAL.

NOTE: After no prior art was found to reject the elected species, the examiner elected another species, to which the claims would be examined, in accordance with Markush practice. This species is, phosphonic acid, [nitrilotris[2,1-ethanediyl]nitrilobis (methylene)]] hexakis-. Claims 7, 45 and 46 are withdrawn as not reading on the elected species, e.g., having P-32 substitution. Consequently, claims 7-42 and 44-60, in all, have been withdrawn. Further, claims 1-4 have been examined only to the extent they read on the elected species (by applicant) and the species recited above, to which art was found, as is the basis of the following art rejection. However, the search was extended to include a reasonable number of species, thus, the subgeneric group set forth in claim 5 (limited only thereto) was examined.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

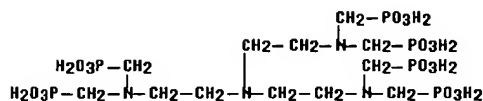
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Simon (US 5,066,478).

Simon discloses the ligand, phosphonic acid, [nitrilotris[2,1-ethanediyl]nitrilobis (methylene)]] hexakis-, which has the following structure:

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which is within the scope of the claimed formula wherein $A=N$, $X=C(R^9R^{10})_m$ (the elected group) and $m=2$, R^9 and R^{10} are H, R^2 is C1 alkyl with 1 $R^7 \text{PO}(\text{OR}^8)_2$ and R^8 is H, R^1 is $(\text{CR}_4\text{R}_5)_n\text{R}^6$, $n=0$ and R^6 is H, see columns 3-4. The ligands are provided in pharmaceutical compositions, see column 2.

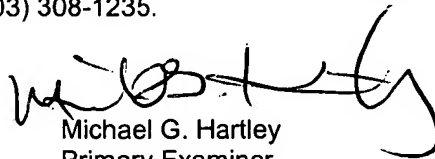
Note, in claim 43, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Allowable Subject Matter

Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art fails to teach or suggest compounds having the specific R^1 groups substituted on the nitrogen containing phosphonate compounds set forth in the formulae in claims 5 and 6.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael G. Hartley whose telephone number is (703) 308-4411. The examiner can normally be reached on M-F, 7:30-5, off alternative Mondays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman K. Page can be reached on (703) 308-2927. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.


 Michael G. Hartley
 Primary Examiner
 Art Unit 1616

MH